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FIRST NAMED INVENTOR ATTORNEY DOCKET NO. CONFIRMATION NO. APPLICATION NO. FILING DATE SNSY-A2001-007 2984 12/06/2001 Ross A. Donelly 10/016,232 EXAMINER 35273 10/22/2003 SYNOPSYS, INC. C/O BEVER, HOFFMAN & HARMS, LLP DIMYAN, MAGID Y 2099 GATEWAY PLACE ART UNIT PAPER NUMBER SUITE 320 SAN JOSE, CA 95110-1017 2825

DATE MAILED: 10/22/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary Examiner			Application No.	Applicant(s)	
### Examiner Art Unit 2825 ### AFIGNER OF THIS COMMUNICATION Extensions of the cover sh et with the correspondence address = Period for Reply A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE ② MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION. Extensions of their new is a specified above, the provisions of 37 CFR 1.136(a), in an event, however, may a reply be timely filled. Extensions of their new is applied above, the macritum standardy prior doll aloply and will expire SX (50 MCM*TIS from the mailing date of this communication is the three period to reply sacedied above, the macritum standardy prior doll aloply and will expire SX (50 MCM*TIS from the mailing date of this communication is the three period is the three medials alone of the sace and the mailing date of this communication, even if threely filled, may reduce any search plant term adjustment. See 37 CFR 1.794(b). **Status** 1)② Responsive to communication(s) filled on 15 August 2003. 2a)② This action is FINAL. 2b)☐ This action is non-final. 3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under Ex parte Quayle, 1935 C.D. 11, 453 O.G. 213. **Disposition of Claims** 4)② Claim(s) 1.20 is/are pending in the application. 4a) Of the above claim(s)is/are withdrawn from consideration. 5)② Claim(s) 1.2.18 is/are allowed. 6)③ Claim(s)is/are objected to. 8)☐ Claim(s)is/are objected to. 8)☐ Claim(s)is/are objected to by the Examiner. 10)☑ The drawing(s) filled on 06 December 2001 is/are: a)☑ accepted or b)☐ objected to by the Examiner. Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a). 11)☐ The proposed drawing correction filled onis:a)☑ approved b)☐ disapproved by the Examiner. 12)☐ The specification is objected to by the Examiner. 13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f). a)☐ His proved, correc					
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The MAILING DATE of this communication appears on the cover shield with the correspondence address = Period for Reply A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION. Extensions of time may be wisble under the provision of 3° CPR 1.136(a). In or event, however, may a reply be timely filed. Extensions of time may be wisble under the provision of 3° CPR 1.136(a). In or event, however, may a reply be timely filed. If the period for reply specified above its less than thing (30 days, a reply with in the statutory minimum of thiny (30 days) will be considered simely. If NO period for reply specified above its less than thing (30 days, a reply with in the statutory minimum of thiny (30 days) will be considered simely. If NO period for reply specified above its less than thing (30 days, a reply with in the statutory minimum of the period	£.	omeo, caeman,			
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THE MAILING DATE OF THIS COMMUNICATION. Enterloans of the may be available under the provision of 3 or ER 1.13(6). In no event, however, may a right bettimely filed after SX (8) MCNTHS from the mailing date of his communication. It NO paned for reply is specified above, the maintain attatutory period within the standory minimum of timely (0) days with the considered timely. It NO paned for reply is specified above, the maintain attatutory period with pay and with capits (X) (MONTHS from the maining date of this communication. Failure to reply within the set or extended period for reply will, by stander, cause the application to become ARANDO/IEC 031 U.S. C. § 1313). Any typhy exceeded by the Office and stander period will be payed and we graps for (X) (MONTHS from the maining date of this communication. even if timely filed. may reduce any standers platest term adjustment. See 97 CFR 1.79(6). Status **This action is FINAL.** 2b) This action is condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under Ex partie Quayle, 1935 C.D. 11, 453 O.G. 213. Disposition of Claims 4) Claim(s) 1:20 is/are pending in the application. 4a) Of the above claim(s) is/are withdrawn from consideration. 5b Claim(s) 1:21 is/are allowed. 6c) Claim(s) 1:11, 19-20 is/are rejected. 7) Claim(s) is/are allowed. 6c) Claim(s)					
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DETAILED ACTION

Acknowledgement

Receipt is acknowledged of the Amendment in Response to the First Office Action, filed August 15, 2003. It is also acknowledged that the Applicants have amended all (twenty) claims, without adding new subject matter.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

- (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.
- Claims 1 11 and 19 20 are rejected under 35 U.S.C. 102(e) as being
 anticipated by Groeneveld et al (hereafter, Groeneveld) U.S. Patent No. 6,230,304.
- 2. Referring to claim 1, Groeneveld teaches a method for placing circuit elements on an IC comprising (a) placing cells of a first circuit design by use of a non-direct timing

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driven layout processes (see Fig. 2; column 10, lines 23 - 37); (b) providing routing information of the cells (see column 1, lines 20 - 35); (c) performing incremental placement of cells (see column 16, lines 11 - 27; also see Fig. 2); (d) placing cells by use of timing driven placement processes and iterating as claimed herein (see again Fig. 2; column 3, lines 18 - 24).

- 3. As per claim 2, see column 9, lines 20 49, which cite the estimation of net lengths and global routes or global optimization of the layout. See also column 15, lines 7 14 which teach how the routing areas can be enlarged as necessary to achieve routability, as claimed herein.
- 4. As per claim 3, see (2) and (3) above and Fig. 2 of Groeneveld, which teach the additional limitations of routing the cells, modifying the circuit design to produce optimized cells and minimum signal timing, placing cells by use of direct timing driven processes and iterating to optimize placement, as claimed herein.
- 5. As per claim 4, see (2) (4) above, since the same rejections apply.
- 6. Referring to claim 5, see column 9, lines 20 34, which recite how rough estimates of net lengths (i.e., wiring congestion) are made, as claimed herein.

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- 7. Referring to claim 6, see column 11, line 66 to column 12, line 2, which show how a buffer can be added to the circuit (i.e., changing the current-handling capacity of the circuit) as claimed.
- 8. As per claim 7, see Fig. 2, steps 220 and 225 of Groeneveld, which teach how cells are sized to achieve the delay timing requirements, as claimed.
- 9. Referring to claim 8, see (2) above, as well as column 7, lines 11 26, which show how synthesis can be performed on the netlist to achieve electrical optimization.
- 10. As per claim 9, see column 8, lines 51 53, which cite how net weights are used to optimize the layout (I.e., wiring interconnections) as claimed herein.
- 11. As per claim 10, see (6) which contains the same limitations, as claimed herein.
- 12. Referring to claim 11, see (8) above which contains the same limitations, and thus the same rejections apply.
- 13. Referring to claims 19 and 20, see above, and Abstract; Fig. 1; column 20, lines 36 42, which cite how a computer can be used for the cell placement, as claimed herein. All the limitations claimed are thus recited above.

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Allowable Subject Matter

- 14. Claims 12 18 are allowed.
- 15. The following is a statement of reasons for the indication of allowable subject matter: these claims pertain to a method for optimizing the placement of circuit elements on an IC that includes synthesis, non-direct and direct timing driven steps, and an iterative place and route process that prior art does not teach, or suggest.

Response to Amendment

- 16. Applicant's arguments filed August 15, 2003 have been fully considered but they are not persuasive. The Applicants argue that claims 1 20, as amended, are patentable over cited art.
- 17. Applicant's arguments with respect to claims 1 11 and 19 20 have been considered but are moot in view of the new ground(s) of rejection. See arguments set forth by the Examiner in the First Office Action; Groeneveld, Fig. 2 (blocks 235, 240, 245 and 250); as well as Agrawal et al (U.S. Patent No. 5,218,551), Fig. 8 and column 19, lines 3 33. All the limitations claimed herein of cell placement, incremental cell



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placement, placing cells using timing driven processes, and iterating the process to optimize cell placements are thus cited in the references.

18. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Magid Y Dimyan whose telephone number is (703) 308-1354. The examiner can normally be reached on Monday - Friday 8:00 AM - 5:00 PM.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew S Smith can be reached on (703) 308-1323. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1782.

Magid Y Dimyan Examiner Art Unit 2825

myd October 03, 2003

MATTHEW SMITH
SUPTRAISORY PATENT EXAMINER
THO INGLOGY CENTER 2800